REMARKS

Claims 10-19 were rejected as being obvious over Lin in view of Awschalom. This rejection is respectfully traversed.

In the "Response to Arguments," the Examiner states that "applicants have not identified what part of the applicants' defined in situ process is missing from the reference." Applicants respectfully submit that neither Lin nor Awschalom discloses "annealing the caplayer *in situ* at a temperature of from about 150°C to about 550°C *thereby manufacturing said magnetic recording medium*." [Emphasis added.]

The limitation "thereby manufacturing said magnetic recording medium" is supported by the preamble "A method of manufacturing a magnetic recording medium," and thus does not raise new issues. Applicants all along considered the preamble to be a limitation that gives life and meaning into claim 10. "[A] claim preamble has the import that the claim as a whole suggests for it." *Bell Communications Research, Inc. v. Vitalink Communications Corp.*, 55 F.3d 615, 620, 34 USPQ2d 1816, 1820 (Fed. Cir. 1995). "If the claim preamble, when read in the context of the entire claim, recites limitations of the claim, or, if the claim preamble is 'necessary to give life, meaning, and vitality' to the claim, then the claim preamble should be construed as if in the balance of the claim." *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165-66 (Fed. Cir. 1999).

Neither Lin nor Awschalom refer to an *in situ* annealing process for manufacturing a magnetic recording medium. As explained in Dr. Harkness' Declaration of May 9, 2003, "Awschalom teaches of the creation ferromagnetic semiconductors via ion implantation of submicron sized ferromagnetic particles" (paragraph 5) and "Lin teaches annealing to effect improved exchange coupling of NiFe/NiMn exchange bias layers (in a spin valve (SV) recording transducer)" (paragraph 6). Any reference to the words "in-situ" and "annealing" in Awschalom and Lin is *not* in the context "of manufacturing a magnetic recording medium" as recited in claim 10.

Also, in the Action of February 28, 2003, on page 2, last two lines, the Examiner states, "The various claimed time and thicknesses limitations are considered conventional and do not render these claims unobvious." The Examiner has provided no support for this statement and Applicants respectfully traverse such a finding of the Examiner. Applicants thus make a seasonable challenge, which constitutes a demand for evidence. Note that MPEP 2144.04 (Rev. 1, Feb 2003) states, "***If Applicant Challenges a Factual Assertion as Not Properly Officially Noticed or not Properly Based Upon Common Knowledge, the Examiner Must Support the Finding With Adequate Evidence***" (emphasis and italics in original).

Even assuming that the Examiner has established a *prima facie* case of obviousness, which Applicants deny, the Federal Circuit in *In re Dillon*, 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1990), *cert. denied*, 500 U.S. 904 (1991) clearly stated that an Applicant could rebut a *prima facie* case of obviousness by a showing of *unexpected results*. Applicants kindly request the Examiner to review the *evidence* of *unexpected results* of the methods of the claimed invention. In particular, please review Example 1 and Comparative Example 3.

First, please refer to page 11, lines 5-17 of the specification, which states:

> A caplayer of CrMn is applied to the magnetic layer with a thickness of 0.8 nm and annealed *in situ* with a 12 kW infrared heater at 300°C for 15 seconds. Additional samples were processed *ex-situ* using a Modular Process Technology RTP-6005 capable of reaching temperatures of 1200 °C.
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> Recording parametrics were measured using a Guzik 1701MP spinstand tester and magnetic properties were determined from vibrating sample magnetometer (VSM) measurements. Microstructural data was collected from transmission electron microscopy (TEM), and XRD.
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> Shown in Fig. 2(a) is the coercive force of the as-deposited and as-annealed samples for media having CrMn/CoCrPt/Cr/NiAl multilayer structures, with a caplayer of 0.8 nm of CrMn. The annealed sample was *in-situ* post annealed at 300 °C for 15 seconds. The data show that annealing greatly boosts the coercive force of the as-deposited samples. A peak of 3809 Oe is reached at

> 0.43 memu/cm^2 with an s* of 0.82 compared to ~1000 Oe with s* equal to 0.90 for the as-deposited samples.

Second, please refer to page 14, lines 6-8 of the specification, which states:

> Samples were annealed *ex-situ* to determine the threshold for coercive force increase. In Fig. 5 it is observed that above 400 °C annealing temperature and 15 seconds duration time, the coercive force finally begins to increase.

Finally, refer to Figures 2(a) and 5. It is quite clear from Figure 2(a) that with the claimed process the coercivity increases by a factor of two to three with just 15 seconds of *in situ* annealing. On the other hand, Figure 5 shows that by *ex situ* annealing, the coercivity does not even begin to increase during 15 seconds of *ex situ* annealing.

Applicants submit that the improvement resulting in the magnetic recording media by the claimed invention would have been *unexpected* in light of the disclosures of the cited references. Therefore, the obviousness rejection of claims 10-19 over Lin in view of Awschalom should be withdrawn.

Please note that"[c]onsistent with the rule that all evidence of nonobviousness *must* be considered when assessing patentability, the PTO *must* consider comparative data in the specification in determining whether the claimed invention provides unexpected results." *In re Soni*, 54 F.2d 746, 34 USPQ2d 1684 (Fed. Cir. 1995) (emphasis added).

In light of the above, the anticipation and obviousness rejections should be withdrawn and a Notice of Allowance is respectfully solicited.

In the event that the transmittal letter is separated from this document and the Patent and Trademark Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952**, docket No. 146712001400.

Respectfully submitted,

Dated: June 3, 2003 By: _____

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